



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/537,521

06/03/2005

Uwe Plocoennik

HM-647PCT

3586

40570

7590

06/02/2009

FRIEDRICH KUEFFNER

317 MADISON AVENUE, SUITE 910

NEW YORK, NY 10017

EXAMINER

RAO, SHEELA S

ART UNIT

PAPER NUMBER

2123

MAIL DATE

DELIVERY MODE

06/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,521	Applicant(s) PLOCOENNIK ET AL.	
	Examiner Sheela Rao	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is in response to papers filed on 9 February 2009.
2. Claims 1-9 are pending and presented for examination. Claim 3 has been amended.

Response to Amendment/Remarks

3. The rejection of claims 1-9 under 35 USC §112, first paragraph, is withdrawn.
4. The rejection of claims 1- 9 under 35 USC §112, second paragraph, is withdrawn.
5. The rejection of claims 1-5 and 9 under 35 USC §103(a) as being unpatentable over US Patent No. 5,357,443 to Watanabe et al. is withdrawn.
6. The rejection of claims 6-8 under 35 USC §103(a) as being unpatentable over US Patent No. 5,357,443 to Watanabe et al. in view of US Patent No. 5,804,727 to Lu et al. is withdrawn.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
8. Claims 1-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2003/0089431 A1 to Gramckow et al. in view of US Patent No. 5,357,443 to Watanbe et al.

Gramckow et al. (hereinafter "Gramckow") teach of a method and device for controlling and/or regulating a metal strip as it is being rolled in a rolling machine.

Claim 1 cites a method for adjusting microstructural properties of a metal produced in the process control or process regulation of an installation for shaping, cooling, and/or heat treatment of the metal, wherein the installation is equipped with actuators for setting specific operating parameters, and the corresponding method process is based on a method model, with which suitable process control and/or process regulation variables for acting on the actuators are determined online with computer assistance after relevant measured values have been detected, comprising the steps of: detecting at least one current actual microstructural characteristic value that provides information about the metal microstructure online at an end of or during a corresponding method process as a relevant measured value; and depending on the relevant value and using a microstructure model and the method model on which the process is based, exerting an effect on the actuators of the method process in order to adjust desired microstructural properties of the metal, such that the following can be nondestructively detected as the actual microstructural characteristic value:

- a microstructural grain size value, and/or
- a microstructural transformation time or the microstructural transformation time interval,
- the microstructural transformation.

Gramckow teaches of controlling the process based upon sensed and/or detected conditions during the processing of the metal strip, then comparing the processing to a model, so as to change the process parameters to achieve the desired

properties of the metal during the processing itself as shown in Fig. 3 and explained beginning in paragraph [0034]. However, Gramckow does not specifically state the microstructural characteristic values and models as per the limitations of the instant claim. Watanbe teaches this beginning in column 3 in relation to Fig. 1, the treatment or processing of steel or the metal is taught at line 11 as being either heat treatment, rolling, and/or cooling. The method models used to estimate the properties is listed beginning at line 47. The step of detecting an actual microstructural characteristic value is taught as being computed by estimating the state of the metallic structure as per col. 4: ll. 1-4. The various characteristics of the structure are defined in line 11 of column 4. The last step of exerting an effect on the actuators is taught in column 5 lines 7-16. The process of computing the results of a model from a previous step or structure is carried through. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the microstructure models and characteristic values as taught by Watanbe with the real-time controlling/regulating process of Gramckow so as to gain the advantage of cooling conditions which correspond better to the actual conditions during processing itself as indicated by Gramckow in paragraph [0010].

Claim 2 specifies the microstructural grain size as the microstructural grain size value for the steel group of C-Mn steel. Watanbe teaches such in col. 4: ll. 24-25, and col. 5: ll. 22-36.

Claim 3 includes detecting the site or the time interval of the beginning and end of the microstructural transformation with several detection units. Watanbe teaches the step of detecting with several detection units by showing the construction and

computation of the model in a variety of units. Examples of the model being processed through different units in each of the 1 steps is taught beginning at line 64 of column 3.

Claim 4 is directed to the process of carrying out the online microstructural control in a cooling line of a wire mill with a water-cooled segment of the cooling line and an air-cooled segment of the cooling line, detecting wherein a current microstructural grain size value of the metal after passage through the water-cooled segment of the cooling line by means of an ultrasonic measuring instrument, and detecting wherein the temperature of a microstructural transformation and a course of the microstructural transformation, with respect to time with temperature measuring devices that can be moved in the direction of conveyance of the metal and/or variably oriented. Watanbe teaches this aspect of the instant invention beginning at line 25 in column 10.

Claim 5 states including comparing an actual value and a set value, and wherein if the comparison of the actual value and the set value reveals a difference that exceeds a certain value, carrying out an online adaptation of the method model and/or the microstructure model as a function of the detected value that provides information about the microstructure. This aspect of the claimed invention is taught at lines 37-43 in column 8.

Claim 9 includes the detecting of the microstructural transformation temperature with at least one temperature detection unit, which is movable longitudinally with respect to the direction of metal conveyance and is positioned as a function of the site of the microstructural transformation that is expected based on the microstructure model. Watanbe teaches this at column 6, lines 34-68.

9. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2003/0089431 A1 to Gramckow et al. in view of US Patent No. 5,357,443 to Watanbe et al. as applied to claim 1 above, and further in view of in view of US Patent No. 5,804,727 to Lu et al.

As with claims 6-8, the use of specific type of measuring instruments is claimed. Claim 6 specifies the detecting step to be done with an ultrasonic or x-ray measuring device. Claim 7 defines the detecting step to be done by detecting linear expansion of the metallic lattice that is associated with the transformation using the measuring instruments that contact the metal. And claim 8 further defines the measuring instruments as being rolling force measuring devices or measuring rollers. Although Watanbe teaches the use of rollers for the rolling process and measuring devices for measuring metallic properties, the prior art fails to specifically teach the use of the devices as per claims 6-8. For this reason, the prior art of Lu et al. (hereinafter "Lu") is relied upon. Lu teaches of a method for determining and evaluating physical characteristics of a material, especially from manufacturing processes as rolling, etc. In operation, an ultrasonic wave is created for use and measured to determine the physical characteristics of the texture, grain size, and crystal lattice structure, as stated in the abstract and in col. 4: ll. 16 et seq. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the measuring devices as used by Lu in the method of Gramckow/Watanbe so as to provide a more accurate high resolution method for determination and evaluation of physical characteristics without the use of destructive methods.

For the reasons stated above, the prior arts of record teach or fairly suggest the limitations of the instant invention, thereby rendering the claims unpatentable.

Response to Arguments

10. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela Rao whose telephone number is (571) 272-3751. The examiner can normally be reached Monday - Wednesday from 9:00 am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez, can be reached on (571) 272-3753. The fax number for the organization where this application or any proceeding papers has been assigned is (571) 273- 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. It should be noted that status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should any questions arise regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sheela Rao/
Examiner, Art Unit 2123
May 20, 2009

/Paul L Rodriguez/
Supervisory Patent Examiner, Art Unit 2123